Office of Information Technology **OIT Log #** **07-017**

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IT Request Form (IT-10)

Department/agency:	Dept./Agn#
Department of Natural Resources-Office of the Secretary	11-431

Contact Information (name, title, phone #, fax #, e-mail): Project Code:

John Dnruser, (P)2252196000, john.dnruser@la.gov

IT Request Information:

Title:

Enterprise Data Warehouse Phased Expansion

Description (functional and technical)

This is a request for approval to obtain consulting services required for the development and implementation of a phased approach to enhancing DOTD's existing Enterprise Data Warehouse. The current enterprise data warehouse is limited to data extracted from seven of DOTD's legacy systems. The goal of the initial deployment was to concentrate on at least one business area which DOTD users agreed was most important. The selected business areas were capital outlay projects and related summary financial data. The current request is needed to complete the process of developing a true Enterprise Wide Data Warehouse. The expansion will provide enhanced decision support and forecasting capability for DOTD executives and others. The development of an enterprise data warehouse for DOTD was identified in the Department's Enterprise Information Architecture (EIA) 5 year plan. The current DOTD Process Improvement Study applauded the inital effort of the data warehouse in consolidating data not previously available in one central location.

Justification (value, benefits, impact):

DOTD still utilizes many computer applications to automate various functions within the department including engineering, financial, and project management applications. The data from these systems needs to be integrated into the data warehouse in a phased approach to allow more DOTD managers access to their own and other departments' data. The complete picture must be available to make informed decisions and to make more accurate forecasts. A phased approach will allow DOTD to reap some benefits at completion of each phase. In light of recent disaster (Hurricane Katrina), it would have been beneficial to have complete budget, personnel, inventory, planning, and design information in one source location as well as being able to provide forecasting information based on prior storms.

Impact if not funded:

Manual processes will be used to produce reports that are more error prone and take up to ten times longer to produce. Federal funding could be lost if an audit reveals poor reporting.

Examples of Comparable Solutions:

A Data Warehouse designed for the Department of Transportation and Development is considered the optimum approach. Use of a data warehouse has been reported as the most advantageous methodology to support a common ground where all sections of the department will find data that is familiar to them, and will have the ability to combine it with data produced by others within the department. The data warehouse approach is superior to stand alone systems which involved different rules, older technology and extensive programming to correlate the required information into an easily readable and understood product. A data warehouse is considered the best approach in that it provides current technology, standards, and is built for flexibility and ease of use to meet DOTD Executive Management requirements, agency rules and regulations.
The initial deployment of the Data Warehouse utilized an iterative process beginning with Business Discovery and progressing through Infrastructure Planning, Solution Outline, Macro Design, Micro Design, Build Cycle and Deployment. The same process will be utilized with successive phases.

Long-Range Planning:

As the state becomes more and more automated and standardized, the need for timely, accurate, cross referenced information increases. With budget constraints increasing, it is imperative that all costs associated with a single project be captured and reported accurately. This will also assist in recovering monies from reimbursable funding such as Federal Highway monies, FEMA, and others. By researching existing information, identifying needs for additional information, accurately designing and implementing a data warehouse and extending the existing functionality, future needs will be identified and planned. With a properly designed data warehouse concept, required information can then easily be compiled.

Once the data warehouse is established, DOTD should continually update and refine it to better meet the reporting needs of its users. DOTD must monitor application changes, incorporate information from new systems, and be aware of changes caused by updates to existing systems.

Technical Approach:

1. Technical description

Data warehousing supplies "a copy of transaction data specifically structured for query and analysis". It can also be thought of as providing "managed data situated after and outside the operational system". Simply put, data warehousing simplifies user requests for data by storing information in a consolidated format that is easy to access and retrieve. Through data warehousing, data representation that currently differs from application to application can be stored using a common format.

The Data Warehouse expansion will use an iterative approach building on our existing Data Warehouse. The process consists of: Business Discovery, Infrastructure Planning, Solution Outline, Macro Design, Micro Design, Build Cycle and Deployment. The same process will be utilized with successive phases. A Project Plan with a Work Breakdown Structure will be completed for each phase.

2. Integration with Existing Technologies

DOTD intends to take advantage of existing infrastructure, state standards, processes and support mechanisms already in use. Data from various human resources, environmental, design, construction, financial, maintenance, and other systems would be stored in the proposed data warehouse in order to facilitate reporting. All data so affected will be normalized, conditioned, standardized and linked for ease of integration.

3. Scalability

A data warehouse by its definition is upwardly scalable. Requirements of the design of this data warehouse will include the flexibility to allow for required modifications to existing systems, including spatial information, and the addition of any new systems.

4. Maintenance

It is the intention of DOTD that at the completion of this project, all data will be integrated into the data warehouse. As a part of the design requirements of any new systems, incorporation within the data warehouse of this new data will be required. Maintenance to the data warehouse itself should be minimal.

Implementation Approach:

The implementation approach includes the following steps for each phase extending the scope of the Data Warehouse:

- Business Discovery – Identify and evaluate client business issues. Over 100 interviews were conducted in the first phase of the Data Warehouse. As the first step of the Data Warehouse expansion, more in-depth interviews would be conducted of employees involved with selected business areas. This process would be repeated with each phase.
- Infrastructure Planning – Defines an architecture that allows for incremental implementation without necessitating a reconstruction of the infrastructure. This phase will be revisited with each phase to be sure infrastructure is adequate.
- Solution Outline – Collect and develop all information needed to make sound decisions regarding the solution for each phase.
- Macro Design – Design architecture that allows for flexible solutions to accommodate future changes in business requirements.
- Micro Design – Plan the Build Cycle of a specific release. At this point the actual data structures for a new phase are designed.
- Build – Incrementally develop and test the system until the desired objectives for a specific phase are achieved.
- Deploy – Deploy the system and prepare for the next phase.

-- Est. Start:04/01/2007 - Est. Completion:06/30/2009

Risk Assessment:

Alignment Risk: The data warehouse approach is superior to stand alone systems which involved different rules, older technology and extensive programming to correlate the required information into an easily readable and understood product. A data warehouse is considered the best approach in that it provides current technology, standards, and is built for flexibility and ease of use to meet DOTD Executive Management requirements, agency rules and regulations.

Implementation Risk: The only risk associated with implementing a data warehouse will occur if the data warehouse is not approved. The current information is stored in many formats using various coding systems, and takes much time to correlate and manage. A data warehouse approach will simplify management and use.

Operating Risk: If this project is approved, the resources of staff and time necessary to compile the required information from multiple sources will be reduced with the simplified and expedited querying and reporting by the use of the data warehouse.

Solution Risk: The proposed data warehouse is appropriate and reasonable. Project plans with milestones will be detailed and resourced adequately. By holding regularly scheduled status meetings and requiring monthly status reports the project will be assessed for adherence.

Benefit Risk: Moving forward with modern techniques and tools will result in a reduction of costs required to cross reference and integrate information. There will be commonality in the formatting of data, codes used, project numbering standardization, and reporting. This will provide timely and accurate reporting at all levels of DOTD..

IT Request (IT-10) - Cost Worksheet
Requested Items

Object Code		Quantity	Unit Cost	FY 06- 07	FY 07- 08	FY 08- 09	FY 09- 10	FY 10- 11
3460	Implementation Professional Services [CSSA]	1.0	$1,350,000	$300,000	$650,000	$400,000	$0	$0
2875	Business Intelligence ETL Software [State Contract]	1.0	$100,000	$0	$100,000	$0	$0	$0
2825	BI ETL Software Annual Maintenance [State Contract]	3.0	$15,000	$0	$0	$15,000	$15,000	$15,000
			Total:	$300,000	$750,000	$415,000	$15,000	$15,000
						Request Total:		$1,495,000

Means of Finance and Total Estimated Project/Initiative Cost

Means of Finance	FY 06- 07	FY 07- 08	FY 08- 09	FY 09- 10	FY 10- 11	Total
General Fund (Direct)						$0
IAT						$0
Fees and Self-Generated						$0
Stat-Ded	$200,000	$500,000	$415,000	$15,000	$15,000	$1,145,000
Interim Emergency Board						$0
Federal	$100,000	$250,000				$350,000
Total:	$300,000	$750,000	$415,000	$15,000	$15,000	$1,495,000

Explanation of Funding:

Tangible Benefits

Category	FY 06- 07	FY 07- 08	FY 08- 09	FY 09- 10	FY 10- 11	Total
Total:						

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Intangible Benefits		
B/C	Description	Recipients

FTE's
Personnel Allocated to Project (New and Existing)

Personnel Description	FY 06- 07	FY 07- 08	FY 08- 09	FY 09- 10	FY 10- 11	Total
Applications Dev. Staff	.0	1.0	1.0	1.0	1.0	4.0
Technical and IT Support Staf	.0	.3	.3	.3	.3	1.2
Other Staff	1.0	1.0	1.0	1.0	1.0	5.0
Total:	1.0	2.3	2.3	2.3	2.3	10.2

Dept. Budget Analyst Review:
Jane Dnrbudget

IT Director Approval:
Marvin Richey

Undersecretary Approval:
Bob Harper

Date: 02/27/2007

CIO Approval No: Date: Amount: